Federal Energy Management Program

FEMP Designated Product:
Room Air Conditioners

Leading by example, saving energy and taxpayer dollars in federal facilities

Purchasing Specifications for Energy-Efficient Products

Legal Authorities

Federal agencies are required by the Energy Policy Act of 2005 (P.L. 109-58) and Federal Acquisition Regulations (FAR) Subpart 23.2 to specify and buy ENERGY STAR®-qualified products or, in categories with no ENERGY STAR label, FEMP-designated products which are among the highest 25 percent of equivalent products for energy efficiency.

Performance Requirement for Federal Purchases

Air Conditioner Type[a] and Capacity	Required EER[b]
with louvers; < 20,000 Btu/hr	10.7 or more
with louvers; ≥ 20,000 Btu/hr	9.4 or more
without louvers; < 8,000 Btu/hr	9.9 or more[c]
without louvers; ≥ 8,000 Btu/hr	9.4 or more

a) Room air conditioning units with louvered sides are typically installed through windows. The louvered sides improve the energy performance of these units by enhancing airflow over the outdoor coil. Units intended for through-the-wall installation require a smooth-sided cabinet without louvers.

b) EER, or Energy Efficiency Ratio, is equal to the measured cooling capacity of the unit (in Btu/hr) divided by its electrical input (in watts) at standard rating conditions.

c) Currently there are no models that can meet this requirement. When purchasing a product from this category we suggest you get one with the best EER available.

Buying Energy-Efficient Room Air Conditioners

When buying room air conditioners directly from commercial sources, choose models that are ENERGY STAR-qualified (see *For More Information*), all of which meet the Energy Efficiency Ratios (EER) shown in the *Performance Requirement* table. Some manufacturers and retailers display the ENERGY STAR label on complying products. For products that do not display the ENERGY STAR, look at the yellow EnergyGuide label for models with EERs that meet this *Specification*.

Performance requirements apply to all forms of procurements, including: guide and project specifications; construction, renovation, repair, maintenance and energy service contracts, lease agreements and solicitations for offers. Energy performance requirements should be included in all evaluations of solicitation responses. Model language to assist agencies with incorporating these performance requirements into their procurement documents is available at http://www.eere.energy.gov/femp/procurement/eep_modellang.cfm.

The federal supply sources for room air conditioners are the General Services Administration (GSA) and Defense Logistics Agency (DLA). GSA sells room air conditioners through its Multiple Awards Schedules program and on-line shopping network, *GSA Advantage!* DLA offers them through the Defense Supply Center Philadelphia and online through DoD *EMall*. Note that not all room air conditioners sold by GSA and DLA are ENERGY STAR-qualified and some products that do qualify may not be indicated as such. When buying room air conditioners through these sources, check the models you are considering against the list of qualified products on the ENERGY STAR web site to assure they meet this *Specification*.

Agencies can claim an exception to these requirements through a written finding that no ENERGY STAR-qualified or FEMP-designated product is available to meet the functional requirements, or that no such product is life-cycle cost-effective for the specific application.

U.S. Department of Energy
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Low Standby Power

Federal agencies are required to purchase products that use one watt of power or less while in their standby mode. Features such as remote controls and digital displays cause room air conditioners to use power whenever they are plugged in, even if the unit itself is "turned off." Federal buyers and procurement officers should purchase room air conditioners without these features. FEMP's Standby Power Data Center Web site (http://oahu.lbl.gov/) has a list of room air conditioners that meet this requirement.

User Tips

Oversizing of air conditioners, besides increasing the purchase cost, will lead to excessive energy consumption and poor humidity removal due to excessive on-off cycling. Both the ENERGY STAR and Consumers Reports' web sites provide advice on the proper sizing of room air conditioners (see *For More Information*).

Refrigerants with ozone-destroying chlorofluorocarbons (CFCs) were used many years ago in room air conditioners, but most existing equipment today uses HCFC refrigerants which have a much lower ozone-depleting effect; ask your supplier for information. When retiring an air conditioner which contains CFCs or HCFCs, the Clean Air Act requires that the refrigerant be recovered prior to final disposal of the appliance. For compliance information, contact the EPA Stratospheric Ozone Information Hotline at (800) 296-1996.

Cost-Effectiveness Example

Performance	Base Model[a]	Required	Best Available[b]
Energy Efficiency Ratio (EER)	9.8	10.7	11.5
Annual Energy Use	765 kWh	700 kWh	640 kWh
Annual Energy Cost	$46	$42	$38
Lifetime Energy Cost[c]	$500	$460	$420
Lifetime Utilities Cost Savings	**-**	**$40**	**$80**

a) The efficiency (EER) of the Base Model is the minimum allowed by current US DOE appliance standards.

b) More efficient products may have been introduced to the market since this specification was published. Information on the best available model was obtained from the ENERGY STAR room air conditioner products list.

c) Lifetime Energy Cost is the sum of the discounted value of annual energy costs based on average usage and an assumed air conditioner life of 15 years. Future electricity price trends and a discount rate of 3.0% are based on federal guidelines (effective from April, 2005 to March, 2006).

Cost-Effectiveness Assumptions

Annual energy use in this example is based on the standard DOE test procedure for a louvered model room air conditioner with a cooling capacity of 10,000 Btu per hour and 750 operating hours per year. The assumed price for electricity is 6¢ per kilowatt-hour (kWh), the average at federal facilities in US.

Using the Cost-Effectiveness Table

In the example shown above, the *Required* room air conditioner is cost-effective if its purchase price is no more than $40 above the price of the *Base Model*. The *Best Available* model is cost-effective if its price is no more than $80 above that of the *Base Model*.

What if my Electricity Price or Operating Hours are different?

ENERGY STAR has an Excel-based cost calculator for room air conditioners on its Web site. Go to http://www.energystar.gov/index.cfm?c=roomac.pr_room_ac, and click on Savings Calculator. Select the nearest city from the pull-down menu and input the rate for electricity. The output section will automatically display results that more accurately reflect your conditions.

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For More Information:

EERE Information Center
1-877-EERE-INF or 1-877-337-3463
www.eere.energy.gov/femp/procurement/

General Services Administration
(816) 926-6760
www.fss.gsa.gov/
www.gsaadvantage.gov/

Defense Logistics Agency
www.dla.mil/
www.emall.dla.mil/

Defense Supply Center Philadelphia
(800) DLA-BULB or (215) 737-7950
www.dscp.dla.mil/

Consumers Report magazine publishes ratings of room air conditioners and also has an online sizing calculator.
(800) 500-9760
www.consumerreports.org/

Federal Trade Commission lists the EERs of room air conditioners and other appliance data on its web site at:
www.ftc.gov/energy/

Lawrence Berkeley National Laboratory provided market research and life cycle cost analysis in support of this energy-efficiency purchasing specification.
(202) 646-7950

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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